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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
08/531,869	09/21/95	USU1	M 920276D/LH

24M1/0116
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EXAMINER	REF ID: T	ART UNIT	PAPER NUMBER
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2415 7
DATE MAILED: 01/16/97

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

- Responsive to communication(s) filed on 10/16/96
- This action is FINAL.
- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- Claim(s) 31-41 is/are pending in the application.
Of the above, claim(s) _____ is/are withdrawn from consideration.
 Claim(s) _____ is/are allowed.
 Claim(s) 31-41 is/are rejected.
 Claim(s) _____ is/are objected to.
 Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
 The drawing(s) filed on _____ is/are objected to by the Examiner.
 The proposed drawing correction, filed on _____ is approved disapproved.
 The specification is objected to by the Examiner.
 The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 All Some* None of the CERTIFIED copies of the priority documents have been
 received.
 received in Application No. (Series Code/Serial Number) _____
 received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- Notice of Reference Cited, PTO-892
 Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
 Interview Summary, PTO-413
 Notice of Draftsperson's Patent Drawing Review, PTO-948
 Notice of Informal Patent Application, PTO-152

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DETAILED ACTION

Response to Amendment

1. The continuing data has been amended per applicants instructions and the amendments to the claims has been entered.

Specification

2. The disclosure is objected to because of the following informalities: at page 50 line 2 applicant has made reference to figure 25 while only 24 figures are present.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 38 and 39 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Storing means ROM 324 does not output minimum value L and maximum value K and, thus, the specification does not support a claim to "outputting one of maximum and minimum gray scale data from said storing means, when the difference value lies outside of a predetermined range".

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4. Claims 40 and 41 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Storing means ROM 324 does not output minimum value L and maximum value K and, thus, the specification does not support a claim to "outputting one of maximum and minimum gray scale data from said storing means, when the gray scale of the image data has one of maximum and minimum gray scale data".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 32 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent No. 2-113476 to Casio. The Casio system drives a liquid crystal display with driving voltages which generate a grayscaled image on the liquid crystal display. These driving voltages are generated by comparing the previous frame of grayscale image data stored in image memory 11 with the current grayscale image data at comparison circuit 12 and applying the comparison result to signal generator 23 which responds by applying signals to analog multiplexer 24 which enables the analog multiplexer to select a driving voltage for electrodes Y1 to Ym.

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Re claim 34:

Note claim 2 of the Casio reference. When a zero comparison result occurs the current image data of the current frame is the data applied to signal generator 23.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 31, 33, and 35-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 2-113476 to Casio and Bassetti, Jr. U.S. Patent No. 5,185,602. The Casio system stores a frame of image data in image memory 11 and compares on a pixel by pixel basis current image data with the stored image data in comparison circuit 12. The result of this comparison determines the level of the voltage to be applied to each pixel for any grayscale value specified by the current image data. This reference describes a circuit for performing the comparison and describes a means for selecting the voltage (analog multiplexer 24) to be applied to the liquid crystal display in response to the result of the comparison. This reference fails to describe a grayscale memory which will convert the result of the comparison into a value which will determine the voltage to be applied to the liquid crystal display. However, it should be noted that the Casio system uses a signal generator 23 which is responsive to the grayscaled image data supplied from data latch 22. Thus, Casio teaches the use of a circuit for converting the grayscaled

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image data into data signals which instruct the analog multiplexer to select a driving voltage to be applied to a particular column electrode Y₁ to Y_m. The type of signal generator used has not been described and only is illustrated by a block which means that any signal generator previous to applicants invention may be used in that block to perform the function of translating grayscaled image data into data which will cause analog multiplexer to select the correct voltages for application to the electrodes of the liquid crystal display. Therefore, Casio suggests that a grayscale memory may be used as the signal generator 23 to convert the grayscaled image data into data signals for instructing applicants segment electrode driver 306. Bassetti uses several grayscale memories (130 and 100 shown in figure 9) for converting grayscaled image data into data determining the voltage to be applied to the liquid crystal display. It would have been obvious to one of ordinary skill in the art at the time of applicants invention to use a look up table resident in a memory as Casio's signal generator 23 because a look up table is a well known means generating a signal in response to an input data signal and because Bassetti teaches that it was known prior to applicants invention to use a lookup table as a means to convert grayscale image data into data which will select driving voltage to be applied to the electrodes of a liquid crystal display.

Re claim 33:

Claims 33/32 claim substantially the subject matter that claim 31 claims and is rejected for the reasons given above.

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Re claim 35:

Note claim 2 of the Casio reference. When a zero comparison result occurs the current image data of the current frame is the data applied to signal generator 23. In the combination of Casio and Bassetti, Jr. when a zero comparison result occurs the current image data of the current frame is the data applied to a memory at the location of signal generator 23.

Re claims 36 and 37:

Note claim 2 of the Casio reference. When a comparison result occurs within a predetermined range a corresponding data is applied to signal generator 23. In the combination of Casio and Bassetti, Jr.: when a comparison result occurs within a predetermined range a corresponding data is applied to a memory at the location of signal generator 23.

Re claims 38 and 39:

Note claim 2 of the Casio reference. When a comparison result occurs outside a predetermined range a maximum or minimum value is applied signal generator 23. In the combination of Casio and Bassetti, Jr.: when a comparison result occurs outside a predetermined range a maximum or minimum value is applied to a memory at the location of signal generator 23.

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Re claims 40 and 41:

Inherently when maximum and minimum grayscale data is applied to the Casio system maximum and minimum data is generated by the signal generator 23. In the combination of Casio and Bassetti, Jr.: when maximum and minimum grayscale data is applied to the Casio system maximum and minimum data is generated by the memory at the location of signal generator 23.

Response to Arguments

9. Applicant's arguments filed 10/16/96 have been fully considered but they are not persuasive. Figures 21-24 and figure 18 illustrate and pages 44-50 describe the embodiment of this divisional application. Applicants assertion that the Casio system does not have a means for storing the gradation or grayscale data is noted but for the reasons given above this explicit lack of a memory for storing gradation or grayscale data is deemed to be overcome by the implicit suggestion of such a memory by the presence of Casio's signal generator 23.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffery A. Brier whose telephone number is (703) 305-4723. The examiner can normally be reached on Monday through Friday from 8:15am to 4:45pm eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Powel, can be reached on (703) 305-4700. The fax phone number for this Art Unit is (703)-305-3989.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

January 15, 1997

Jeffrey A. Brier
JEFFERY BRIER
PRIMARY EXAMINER
GROUP 2600